

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/003677

**A CLASSIFICATION OF SUBJECT MATTER**  
G06T7/20 H04N7/26 H04N7/36 H04N5/14

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
G06T H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	<p>SHI Y Q ET AL: "OPTICAL FLOW-BASED MOTION COMPENSATION ALGORITHM FOR VERY LOW-BIT-RATE VIDEO CODING"</p> <p>INTERNATIONAL JOURNAL OF IMAGING SYSTEMS AND TECHNOLOGY, WILEY AND SONS, NEW YORK, US,</p> <p>vol. 9, no. 4, 1998, pages 230-237,</p> <p>XP000768994</p> <p>ISSN: 0899-9457</p> <p>the whole document</p> <p>-----</p> <p>-/--</p>	<p>1-9,</p> <p>15-17,</p> <p>20-22,</p> <p>24-26</p>

☒ Further documents are listed in the continuation of box C

**D** Patent family members are listed in annex

\* Special categories of cited documents

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

14 November 2005

Date of mailing of the international search report

03 03. 06

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	<p>PEKER K A ET AL: "Automatic measurement of intensity of motion activity of video segments"</p> <p>PROCEEDINGS OF THE SPIE, SPIE, BELLINGHAM, VA, US,</p> <p>vol. 4315, 24 January 2001 (2001-01-24), pages 341-351, XP001176760</p> <p>ISSN: 0277-786X</p> <p>page 345 - page 347</p> <p>-----</p>	<p>1-9,</p> <p>15-17,</p> <p>20-22,</p> <p>24-26</p>
A	<p>NIKHIL BALRAM ET AL: "NONCAUSAL PREDICTIVE IMAGE CODEC"</p> <p>IEEE TRANSACTIONS ON IMAGE PROCESSING, IEEE SERVICE CENTER, PISCATAWAY, NJ, US,</p> <p>vol. 5, no. 8, 1 August 1996 (1996-08-01), pages 1229-1242, XP000595722</p> <p>ISSN: 1057-7149</p> <p>page 1229 - page 1234</p> <p>-----</p>	<p>9</p>
A	<p>POLANA R ET AL: "Recognition of motion from temporal texture"</p> <p>PROCEEDINGS OF THE COMPUTER SOCIETY CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION. CHAMPAIGN, IL, JUNE 15 - 18, 1992, NEW YORK, IEEE, US,</p> <p>15 June 1992 (1992-06-15), pages 129-134, XP010029299</p> <p>ISBN: 0-8186-2855-3</p> <p>abstract</p> <p>pages 130-131: section "3 Temporal Texture"</p> <p>-----</p>	<p>1-9,</p> <p>15-17,</p> <p>20-22,</p> <p>24-26</p>

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International application No  
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## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons

- 1 ☒ Claims Nos  
because they relate to subject matter not required to be searched by this Authority, namely
- 2 ☐ Claims Nos  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically
- 3 ☐ Claims Nos  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6 4(a)

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application as follows

see additi onal sheet

- 1 ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims
- 2 ☐ As all searchable claims could be searched without effort justifying an additional fee this Authority did not invite payment of any additional fee
- 3 ☐ As only some of the required additional search fees were timely paid by the applicant this International Search Report covers only those claims for which fees were paid, specifically claims Nos
- 4 ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims, it is covered by claims Nos  
1-9, 15-17, 20-22, 24-26

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest
- ☐ No protest accompanied the payment of additional search fees

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims : 1-9, 15-17, 2G-22, 24-26

Detection and modelling of spatially correlated space-time features in video images (i.e. in-frame correlations) by non-causal Markov random fields or non-causal auto-regressive models

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2. claim: 10

Observation of the motion status of video objects by observing the temporal evolution (i.e. from frame to frame) of statistical parameters of related space-time features (e.g. this subject matter may be related to the automatic observation whether an object starts or stops moving)

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3. claim: 11

Automatic Video indexing for content based video retrieval using the statistics of space-time features

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4. claim: 12

Shape recognition and posture estimation of video objects (e.g. of peoples) by examining the horizontal and vertical histograms (i.e. projections of motion blocks (or of related features of motion blocks) onto the x and y-axis of the video frames)

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5. claims: 13, 19, 23

Bit rate allocation in video coding based the statistics of space-time features of image blocks

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6. claims : 14,18

De-interlacing (scan line conversion) of video signals using space-time features

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